EOLEUCODON, A NEW MOSS GENUS FROM POLYNESIA

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During preparation of the key to genera of Polynesian mosses for the Prodromus Florae Muscorum Polynesiae (Miller, Whittier and Whittier, 1978), the description of *Leucodon pacificus* Bescherelle caught our attention because a single long costa is anomalous in *Leucodon* as the genus is circumscribed today. Subsequently, while we worked in the British Museum (Natural History), it was possible to search out the type material for examination and comparison with potentially allied taxa. We found two specimens of *Leucodon pacificus*, one each from the Schimper and Bescherelle herbaria. The total agreement of developmental stages, size and condition indicated that the two specimens are part of a single gathering. The sole indication "Taïti" on the Schimper specimen can only be taken to mean that the specimen was transmitted from there--a common kind of annotation among herbaria of the period. Bescherelle's collection data are much more complete and fit the original citation from the description (1895): "Iles Marquises: Nukuhiva, sur les ecorces d'arbres dan la baie Taiohae,leg. Jardin." Although no date is given on the specimen (only a cryptic "18/3 -18/4"), Edélestan Jardin, a marine inspector, collected in French Polynesia during 1852-1855.

Bescherelle's original description summarizes accurately the salient features of the species. Further he observed that the plants approached "*Leucodon domingensis*," now known to be a synonym of *Pseudocryphaea flagellifera* from tropical America. The two taxa agree in having a somewhat dendroid habit, quadrate cells in the alar region and an elongate costa. They differ, however, in habit, areolation and costa structure. The structure of the base of the costa suggests the mid-basal areolation of some *Leucodon* species may represent the condition which prevailed in the costate ancestors of that genus. The combination of the primitive morphology and the discovery of the genus in the remote and long-isolated Marquesas Islands suggests ties with ancient Gondwana floras. We propose that this unique genus of mosses be designated "dawn *Leucodon*."

EOLEUCODON, genus novum

Plantae frondosae ramulosis pinnatis interdum attenuatis. Folia ovata, integerrima autem ad apicem denticulata, siccitate dense julaceo-imbricata madore erecto-patentia, ramulina inferiora caulinis simila superiora valde minora, margine e basi rotundata subauriculata ad medium revoluta, costa valida infra apicem erosum evanida levi, cellulis rhombiformibus ad costam oblique dispositis ad margines pluries seriatis quadratis. Perichaetia in ramo primario obsita, cylindrica, circa 5 mm longa foliis angustis intimis longe lanceolatis convolutus obsolete semicostatis integris vel tantum apice dentato

erosis, externis rotundato-squamosis et ovatis plus minus subito acuminatis ecostatis. Seta elongata, torta; capsula ignota. Species typicum: *Eoleucodon pacificus* (Bescherelle) comb. nov.

Basionym: *Leucodon pacificus* Bescherelle. 1895. Ann. Sci. Nat. Bot. Ser. 7, 20: 33.

Plants corticolous; leafy stems becoming frondiform from a soon-leafless and closely adnate rhizome, frondiform branches several per rhizome and occasionally producing secondary fronds from the older region of a frond axis; branching of the frond closely once pinnate with many longer branches becoming attenuated to nearly flagelliform. Primary leafy stem oval in cross-section with 3-5 layers of dark red-brown, incrassate, cortical cells surrounding a firmly parenchymatous, pellucid medulla with a weak central strand of 7-12 minute cells. Leaves concave, broadly ovate, with a single tapered, nearly percurrent midvein rising from a 3-5 rayed basal costal plate; margin revolute to midleaf or beyond, entire below and erose-dentate above; leaf tip acuminate or sometimes blunted by failure of the distal cell to form fully. Branch leaves smaller and proportionally narrower, especially so in the attenuated branch tips. Leaf cells smooth, irregularly rhomboid, somewhat collenchymatous, becoming quadrate and faintly collenchymatous at the base and extending obliquely up the margins. Perichaetia borne on the dorsal side of the primary leafy axis; inner perichaetial leaves more than twice the length of the vegetative leaves, forming a sheath around the seta, outer perichaetial leaves in several series, longer and more attenuated towards the middle of the perichaetium. Seta exceeding the tips of the perichaetial leaves by 1-3 mm or more, brownish, somewhat twisted, erect. Capsules not seen. (Figure 1)

Because of Bescherelle's comparison with *Pseudocryphaea*, we reviewed that genus in detail. Although we finally concluded that our Pacific species was not congeneric, we had assembled a widely scattered literature and examined many critical specimens. We found that the generic name has a somewhat confused history in that the name was proposed for *Pilotrichum flagelliferum* Bridel by Elizabeth Gertrude Britton in 1905, but in her discussion and characterization, she did not distinguish generic and specific characters, and so the genus was not validly established at that time (Art. 41, International Code of Botanical Nomenclature, 1972). The first properly designated generic diagnosis was published by Brotherus (1925) under "*Pseudocryphaea* Eliz. Britt. in Bull. Torr. Bot. Club 1905, p. 261."

Figure 1. *Eoleucodon pacificus*. A. Habit; B. Perichaetium; C. Attenuated branch; D. Perichaetium; E. Primary branch leaf; F. Secondary branch leaf; G, H. Attenuated branch leaves; I, J. Leaf tips; K. Median leaf cells and margin; L. Basal angle of leaf; M. Costal plate from secondary branch leaf; N. Cross-section of costal plate near base of primary branch leaf; O. Cross-section of primary branch. Scales: 10 mm - A; 5 mm - B, C; 1.0 mm - D, E, F, G, H; 0.10 mm - I, J, K, L, M, N, O. Drawn from the type.

Brotherus is cited in the Index Muscorum.

The species has carried several names, some published and some apparently found only in herbaria:

Pseudocryphaea flagellifera (Brid.) E. G. Britton. Bull. Torrey Bot. Club 32: 261. 1905.

Pilotrichum flagelliferum Brid. Bryo. Univ. 2: 259. 1827. Type: leg. Bertero s.n., Cuba (hb NY, isotype hb BM!)

Neckera domingensis C. Muell. Syn. Musc. 2: 95. 1850. Type: leg. Bertero ex hb Sprengel. (isotype hb BM!)

Leucodon domingensis (C. Muell.) Mitt. J. Linn. Soc. 12: 409. 1869.

Cryphaea? leptoclada Sull. Proc. Amer. Acad. 5: 283. 1861. Type: leg. Wright no. 68, on bushes in ravines, Cuba. (hb FH, isotypes BM!, G!)

Leucodon flagellare in hb (hb G!)

Pterigynandrum domingense in hb (hb G!)

Illustrations: Breen (1963) Plate 110, figs. 1-6; Brotherus (1925) fig. 502 A-E, p. 94; Florschutz (1964) fig. 97 a-d. p. 245.

Distribution: Peninsular Florida, Cuba, Hispanola, Puerto Rico, Antilles, Trinidad, Guadeloupe, Jamaica(?), Venezuela, Brazil, British Guiana, Surinam, Panama, Mexico, Costa Rica, Guatemala, Bolivia, Peru.

Among the synonyms listed by Britton (1905) was "?*Hypnum nudicaule*" Schwaegr. Spec. Musc. Suppl. 1(2): 223. 1816, and "*Pterigynandrum nudicaule*" (Schwaegr.) Brid. Bryol. Univ. 2: 182. 1827. This taxon is based upon a specimen leg. Thouin s.n., Domingo (hb G!) as noted by Florschutz (1964). The type collection of *Hypnum nudicaule* is well preserved and is of a robust, shiny plant with small lateral sporophytes on a branch, so it is clearly not *Pseudocryphaea*. The type was annotated "*Pilotrichella* cf. *flexilis* (Hedw.) Jaeg. (Type de *Hypnum nudicaule* Schwaegr.). P.A. Florschutz, XI-1954," a judgment which seems correct.

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